

MEASURING THE SUB-MILLIMAGNITUDE FREQUENCY SPECTRA OF PULSATING B STARS

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We propose to measure the pulsation spectra of 122 B-stars whose magnitudes are brighter than 15. Simulations show that Kepler 30 minute measurements over a 6 month time period will allow pulsations whose amplitudes are only 0.02 mmag to be detected with a S/N of about 6. This represents an improvement of a factor of over 60,000 relative to what has been achieved in the best ground-based studies of these stars. To demonstrate the value of these newly acquired spectra, we will determine the modes of the larger amplitude pulsations of three of these stars using multi-color light curves. The tools of asteroseismology will then be applied to the other Kepler frequencies to determine the masses, ages, metal content, convective overshoot parameter, hydrogen content, radii, surface rotation, and rotation profile for these stars.